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ABSTRACT

Specific Wechsler Intelligence Scale for Children Revised subtest scores and score relationship of 33 learning disabled (LD) children (6-12 years old) were analyzed by chi square and t tests for significant differences between those LD children displaying behavior problems and those who did not exhibit such problems. Comparison of Similarities, Comprehension, and Picture Arrangement subtest ratios revealed no significant differences between the two groups, however those Ss whose Picture Arrangement ratios were greater than both their Similarities and Comprehension ratios made up a significantly greater proportion of the behavior problem group. Findings suggested that an LD child's thought processes help determine his/her pattern of behavior. (Author/CL)

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BEHAVIORAL PROBLEMS AND DIFFERENTIAL WISC-R CHARACTERISTICS OF LEARNING DISABLED CHILDREN

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ABSTRACT

Specific WISC-R subtest scores and score relationships of thirty-three learning disabled(LD) children were analyzed by chi square and t tests for significant differences between those LD children displaying behavior problems and those who did not exhibit such problems. Comparison of Similarities, Comprehension, and Picture Arrangement subtest ratios revealed no significant differences between the two groups, however those subjects whose Picture Arrangement ratios were greater than both their Similarities and Comprehension ratios comprised a significantly greater proportion of the behavior problem group.

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Behavioral Problems and Differential WISC-R Characteristics of Learning Disabled Children

This study was conducted to explore certain subtest score differences on the Wechsler Intelligence Scale for Children-Revised(Wechsler, 1974) noted in the profiles of learning disabled(LD) children displaying behavior problems in the home and school setting. The differences observed in the profiles of the LD children with behavior problems suggested that their scores on the Picture Arrangement(PA) subtest were more likely to exceed their scores on the Similarities(SIM) and Comprehension(COMP) subtests. This did not seem to be the case with LD children who did not display behavior problems.

There has been some previous research exploring Wechsler subtest differences and "acting out" behavior, however nothing seems to have been pursued in this area using a sample of LD children, many of whom display notable behavior or child management difficulties (Stevens, 1980). In their study of violent and nonviolent males who had been hospitalized for the criminally insane, Kunce, Ryan, and Eckelman (1976) found that the violent group displayed significantly lower ratio scores ($^{SS}/_{\Sigma SS} \times 100$) on the SIM subtest of the Wechsler Adult Intelligence Scale(WAIS). A tendency to behave in a socially unacceptable manner would seem characteristic of individuals who lack abstract

reasoning skills and therefore act out rather than discuss or negotiate conflicts. The SIM subtest was chosen as a possible measure of this difficulty because it involves abstract reasoning. In an attempt to cross-validate the above mentioned study, Ryan and Blom(1979) sampled violent and nonviolent males who had not been declared criminally insane. Their results, which were negative, are indicative of the variation which may be found when investigating this area of research. Hays and Solway(1977) conducted a study similar to Kunce, Ryan, and Eckelman's (1976) in which violent juvenile offenders were used rather than adults. These juveniles were administered the Wechsler Intelligence Scale for Children- Revised (WISC-R). The SIM ratio was found to be lower in the violent juveniles when compared to a random sample of the delinquent population, but the significant relationship between the SIM subtest and violent behavior which was found in the adult study was not present in the juvenile study. Despite occasional conflicting results, these studies are beneficial in the understanding of violent behavior and the possibility of early detection and/or prevention of this behavior with the use of tests.

The COMP and PA subtests of the WISC-R may also be helpful in studies such as these. The COMP subtest attempts to measure insight and practical judgement with respect to problems of everyday living(Glasser and Zimmerman, 1967). These qualities are present in those who are

able to comprehend situational difficulties and express their behavior accordingly. It would seem that individuals with behavior problems are not adept at this skill. The PA subtest is a measure of visual comprehension of situations calling for insight, judgement, and reasoning(Glasser and Zimmerman, 1967). A high score on this subtest would suggest an individual who is capable of adequate social functioning at a nonverbal level, i.e., capable of interpreting people's actions but not their words. Socially unacceptable behavior such as violence or acting out is often the result of poor verbal communication. Thus, the PA subtest would seem a good indicator of one's ability to visualize situational outcomes and deal with them nonverbally.

The preceeding information raises a pertinent question: Does a relationship exist between the SIM, COMP, and PA subtests of the WISC-R and the behavior of LD children?

Method

Subjects

The subjects were 33 children who were diagnosed as LD by a multi-disciplinary team of professionals at the Child Development Clinic in Danville, Va. The diagnostic process involved medical, psychological, social, and educational evaluations by appropriate professionals. Six-

teen of these LD children showed evidence of behavior problems in both the home and at school. Seventeen showed no evidence of behavior problems in either the home or at school. The subjects were selected by referring to a calendar of patient evaluation dates. Beginning with those most recently evaluated and proceeding backwards by calendar dates on a case by case basis, a sample of school aged LD children was gathered. The subjects were between the ages of 6 and 14 with the mean age being 10yrs. 10mos. for those with behavior problems and 9yrs.7mos. for those without behavior problems. A t-test for uncorrelated groups indicated the 15 month difference between mean ages was not significant(Downie and Heath,1983). There was a total of 27 males and 6 females. The group of children with behavior problems consisted of 15 males and 1 female. The group without without behavior problems included 12 males and 5 females. A comparison of verbal, performance, and full scale IQs of the two groups by t-tests for uncorrelated groups revealed no significant differences between the two groups.

Procedure

Every LD subject was administered the WISC-R as part of his/her diagnostic examination. Each subject's ratio scores for the PA,SIM, and COMP subtests were computed.

This was done by dividing the specific subtest standard score by the sum of the ten subtest standard scores which were used on determining full scale IQs. The resulting ratios were then multiplied by 100 to provide whole number scores. Ratio scores were used rather than the actual subtest scores to allow for varying IQs. The ratio score affords comparable measures, regardless of IQ level, because it represents the contribution of the particular subtest to the individual's total score. This allows valid comparisons on a percentage basis. These three ratio scores were recorded on a chart along with the subject's name, sex, age, verbal IQ, performance IQ, and full scale IQ. Presence or absence of behavior problems was also indicated.

Chi-square analyses and t-tests(Downie and Heath, 1983) were used to compare PA ratio scores with SIM and COMP ratio scores on both a within groups and between groups basis.

Results

Analysis of within group differences by t-tests yielded the following results:

For the behavior problem sample, PA ratios were significantly larger than both SIM and COMP ratios(SIM $t=3.21$, sig. at $< .01$; COMP $t=2.42$, sig. at $< .05$).

For the non behavior problem sample, PA ratios were significantly larger than the SIM ratios($t=2.12$, sig. at $< .05$),

but there was no significant difference between PA ratios and COMP ratios(t=0.95, not sig.).

Chi-square was then used to compare the two groups on the following bases: 1) PA ratios exceeding both SIM and COMP ratios, 2) PA ratios being equal to or less than either SIM or COMP ratios. The chi-square analysis indicated a significant difference between the two groups(x^2=2.81, df=1, sig. at < .05, 1 tailed test). When an LD child's PA ratio is greater than both the SIM and COMP ratios, he is more likely to be a behavior problem. When an LD child's PA is equal to or less than either the SIM or COMP ratios, he is more likely to be a non behavior problem.

A t-test was done on both the behavior problem group and the non behavior problem group to determine if there were significant differences between the verbal IQs and performance IQs for each group. No significant differences were found for either group.

Between groups analyses comparing the SIM,COMP, and PA ratios by t-test yielded no significant differences between groups on these scores.

Between groups chi-square analyses comparing the obtained ratio scores with a theoretically average ratio score of 10 did not yield any significant differences

between groups.

Discussion

These findings have demonstrated the existence of a relationship between the PA, SIM, and COMP subtests of the WISC-R and the behavior of LD children. They suggest that an LD child's thought processes help determine his/her pattern of behavior. An LD child characterized by strong nonverbal social perception ability accompanied by weaker abstract reasoning and practical judgement abilities is likely to engage in problem behavior. An adequate PA score accompanied by less adequate SIM and COMP scores suggests an individual who may be capable of "reading" people's actions, but who has more difficulty understanding rules, regulations, and verbal explanations. If conflicts result from difficulties in such verbal exchanges and reasoning processes, an individual with a high PA score may then use his/her social perceptual skills to manipulate or retaliate against other people and situations which he/she cannot understand.

The t-test which was done on each group's verbal and performance IQs was necessary to insure the validity of the preceeding statements. The absence of significant differences decreases the possibility of one or both group's verbal and performance abilities being predisposing factors which could have influenced the study.

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STATISTICAL DATA

Behavior Problem Group		Non Behavior Problem Group
	Age	
$\bar{M}$ CA= 10.85 yrs.. SD= 1.99 yrs. (N= 16)	t= 1.803 DF=31 not sig.	$\bar{M}$ CA= 9.59 yrs. SD= 1.86 yrs. (N= 17)
	IQ	
$\bar{M}$ VIQ= 85.5 SD=11.789	t= -0.335 not sig.	$\bar{M}$ VIQ= 86.823 SD= 10.176
$\bar{M}$ PIQ= 91.687 SD= 12.076	t= -0.229 not sig.	$\bar{M}$ PIQ= 92.705 SD= 12.979
$\bar{M}$ FSIQ= 87.562 SD= 10.295	t= -0.323 not sig.	$\bar{M}$ FSIQ= 88.764 SD= 10.361
	Ratio Scores	
$\bar{M}$ SIM ratio= 8.4512 SD= 2.959	t= -0.9206 not sig.	$\bar{M}$ SIM ratio= 9.3935 SD= 2.738
$\bar{M}$ COMP ratio= 10.4575 SD= 2.1179	t= 0.066 not sig.	$\bar{M}$ COMP ratio= 10.4105 SD= 1.8249
$\bar{M}$ PA ratio= 12.855 SD=3.008	t= 1.666 not sig.	$\bar{M}$ PA ratio= 11.235 SD=2.384

DISTRIBUTION OF SUBJECTS ACCORDING TO WISC-R RATIO SCORES AND PRESENCE/ABSENCE OF BEHAVIOR PROBLEMS

SIM ratio	n	BP[2]	NBP[3]	%BP	%NBP
≥ 12	3	1	2	6%	12%
9,10[1],11	13	6	7	38%	41%
< 9	17	9	8	56%	47%
COMP ratio					
≥ 12	6	2	4	13%	24%
9,10,11	19	11	8	69%	47%
< 9	8	3	5	18%	29%
PA ratio					
≥ 12	19	12	7	75%	41%
9,10,11	11	3	8	19%	47%
< 9	3	1	2	6%	12%

[1]a ratio score of 10 is theoretically average ($^{SS}/_{\Sigma SS} \times 100$)

[2]BP= Behavior Problem group

[3]NBP= Non Behavior Problem group

CHI- SQUARE ANALYSIS OF RATIO SCORE DIFFERENCES

	BP	NBP	
PA ratio > both SIM/COMP	13	8	21
PA ratio ≤ either SIM/COMP	3	9	12
	16	17	33

$x^2 = 2.8175$ with DF=1
one tailed test
indicates sig. at .05

(coefficient of contingency) c= 0.28 sig. at .05
note: maximum c for DF=1 = 0.707

Behavior/Conduct Problems and WISC-R SIM., COMP. and P.A. Ratios

NAME	SEX	AGE	VIQ	PIQ	FSIQ	LD	SIM/R	COMP/R	PA/R	CONDUCT H	CONDUCT S
						BEHAVIOR PROBLEMS					
	M	7/11	100	105	102	✓	9.6	9.6	14.4	✓	✓
	M	11/8	91	87	88	✓	10.7	9.5	13.09	✓	✓
	M	12/10	98	92	95	✓	10.6	9.5	15.9	✓	✓
	M	6/6	82	58	69	✓	14.8	12.9	3.7	✓	✓
	M	13/1	92	100	95	✓	7.44	8.51	10.63	✓	✓
	F	10/6	78	85	80	✓	4.2	11.7	12.6	✓	✓
	M	8/6	78	91	83	✓	7.89	11.84	15.8	✓	✓
	M	9/10	87	74	80	✓	9.8	16.9	14.08	✓	✓
	M	12/3	73	95	82	✓	6.6	8.0	13.3	✓	✓
	M	10/5	88	109	98	✓	8.16	10.2	11.2	✓	✓
	M	14/1	106	102	104	✓	11.2	9.3	10.25	✓	✓
	M	10/3	92	95	92	✓	7.69	9.89	12.08	✓	✓
	M	10/5	74	95	83	✓	6.57	10.52	13.15	✓	✓
	M	10/1	68	93	79	✓	1.4	11.4	17.1	✓	✓
	M	12/8	64	85	72	✓	8.47	8.47	15.25	✓	✓
	M	12/7	97	101	99	✓	10.1	9.09	13 13	✓	✓
						NON BEHAVIOR PROBLEMS					
	F	7/4	95	80	86	✓	9.8	14.8	4.9	0	0
	F	11/6	87	109	97	✓	9.27	11.3	9.27	0	0
	M	10/6	85	77	80	✓	7.04	11.26	12.67	0	0
	M	12/6	113	118	118	✓	8.8	12.0	12.9	0	0
	M	6/11	80	78	78	✓	10.2	11.7	11.7	0	0
	M	8/7	86	101	92	✓	6.6	12.2	12.2	0	0
	F	7/4	81	74	76	✓	15.15	7.57	13.63	0	0
	M	7/7	102	91	96	✓	11.45	12.5	13.54	0	0
	F	6/10	85	91	87	✓	15.85	8.53	9.75	0	0
	F	12/5	85	91	87	✓	9.75	8.5	10.97	0	0
	M	8/8	87	102	93	✓	9.78	8.69	15.2	0	0
	M	11/4	72	91	80	✓	7.04	9.85	14.08	0	0
	M	9/6	91	108	99	✓	9.09	9.09	10.10	0	0
	M	10/0	70	90	78	✓	4.34	8.69	8.69	0	0
	M	10/9	77	82	78	✓	8.8	10.3	10.3	0	0
	M	11/1	85	105	95	✓	8.5	9.5	10.6	0	0
	M	10/4	95	85	89	✓	8.23	10.5	10.5	0	0

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